

**Remarks**

Applicant has amended Claims 1 and 53. Applicant respectfully submits that no new matter was added by the amendment that would require further searching or consideration by the Examiner, as all of the amended matter was present in the previously submitted claims. (*See e.g.* Independent Claims 38 & 64). Entry of the amendment and favorable consideration thereof is earnestly requested.

The Examiner has submitted that the plasma-sprayed coating 9 consisting essentially of zirconia "is considered to be a part of the wire/thermocouple lead/leg (electrically conductive component)." (Official Action, p. 18; *See*, Bjornson Col. 2, lines 20 – 24; FIG. 1). Accordingly, Applicant has amended Claims 1 and 53 to include, among other limitations, a first electrically conductive component formed from at least one first noble metal and an oxide deposited within grain boundaries and main body portion of the at least one first noble metal, the oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these; and a second electrically conductive component formed from at least at least one second noble metal, different than the first noble metal, and an oxide deposited within grain boundaries and main body portion of the at least one second noble metal, the oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these.

Applicant submits that U.S. Patent No. 3,462,318 to Bjornson ("Bjornson") fails to teach or disclose that an oxide is deposited within grain boundaries and a main body portion of the conductors as required by Claims 1 and 53. In addition, Bjornson also fails to teach that an oxide is dispersion hardened within a grain boundary and within a main body of the conductors as required by Claims 38 and 64. Rather, Bjornson teaches that "lengths 7 and 8 of the thermocouple conductors . . . are coated with a plasma-sprayed coating 9 consisting essentially of zirconia." (Col. 2, lines 20 – 24; FIG. 1).

Therefore, lengths 7 and 8 of the thermocouple conductors are not formed of an oxide deposited (or dispersion hardened) within grain boundaries and a main body portion of the conductors, but rather a "plasma sprayed coating 9 completely surrounds the lengths 7 and 8 and junction 3 thereby forming a complete protection of these elements." (Col. 2, lines 28 – 29). Accordingly, Bjornson cannot anticipate the pending claims.

The Examiner has submitted that Bjornson may be combined with U.S. Patent No. 6,129,997 to Braun *et al.* ("Braun") and that Braun teaches a "material Pt/Rh alloy or an alloy comprising platinum and base metal content wherein a shaped body of platinum material dispersion hardened by finely divided small particle of a base metal oxide wherein the base metal oxide is yttrium" and that it would be obvious to combine Braun with Bjornson to obtain a thermocouple capable to sustain high temperatures. (Official Action, p. 11-12). Applicant respectfully disagrees.

First, Bjornson fails to teach, disclose or suggest providing an oxide deposited (or dispersion hardened) within grain boundaries and a main body portion of the conductors as required by all pending claims.

Second, while Braun teaches dispersion hardening, this method cannot be combined with Bjornson. For example, Braun is directed to “manufacturing a welded shaped body of platinum material dispersion-hardened by finely divided small particles of base metal oxide.” (abstract). Braun teaches fabrication of a “sheet (dimensions: 400 mm long, 350 mm wide, 3 mm thick) of unoxidized platinum material doped with 0.18 wt % zirconium and 0.017 wt % yttrium” and that “[e]longation is accomplished with a drawing mandrel.” (Col. 4, lines 52 – 65). However, this method was already discussed as unsuitable for fabrication of wires. (See, par. 14 “platinum has been developed and applied to for instance, the glass industry. For instance, zirconia grain stabilized platinum has been used in the glass industry for the construction of a sheet of material.”) The limitation of this technique is that “the various DPH of platinum approaches taken have utilized a powder material [finely divided small particles] that cannot be utilized and manufactured into a wire for use in a measurement device.” (par. 14) (emphasis added).

It is well settled that if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). In the present case, Applicant respectfully submits that combination of these references as suggested by the Examiner would result in a sens-

ing device that would not be useable as a temperature sensor because the method taught in Braun cannot be fashioned into a wire conductor and there is no signal repeatability with the method taught in Braun.

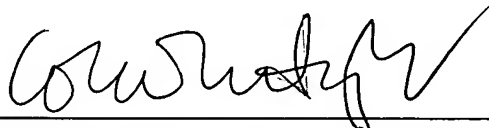
The Examiner has also submitted that Bjornson may be combined with U.S. Patent No. 4,675,204 to Nicoll *et al.* ("Nicoll"), which teaches a "[m]ethod of applying a protective layer to a component made of an oxide dispersion hardened superalloy in which the surface of the component is subjected to heat treatment and/or provided with a coating before the protective layer is applied." (abstract). The method is similar to that previously described in connection with Braun where "[t]he manufacture of components from an oxide dispersion superalloy begins with the production of the powder which forms the alloy" and that the "metals or metal compounds which are required for manufacturing the powder are mechanically alloyed in a high-energy pulverizer." (Col. 1, lines 18 – 23) (emphasis added). This is the same techniques described in the background of the invention as discussed in connection with Braun. As previously stated, sheets of material generated by the method taught in Nicoll are not usable in the measurement field as signal repeatability is not addressed by this process, and a malleable electrically conductive wire cannot be made accordingly to this process.

Accordingly, because Bjornson, Braun and Nicoll all fail to teach, disclose or suggest a first electrically conductive component formed from at least one first noble metal and an oxide deposited (or dispersion hardened) within grain boundaries and main body portion of the at least one first noble metal, the oxide selected from the group consisting

of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these; and a second electrically conductive component formed from at least at least one second noble metal, different than the first noble metal, and an oxide deposited (or dispersion hardened) within grain boundaries and main body portion of the at least one second noble metal, the oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these, as required by all pending claims, no combination thereof can render the pending claims obvious.

It is respectfully submitted that claims 1 – 81, all of the claims remaining in the application, are in order for allowance and early notice to that effect is respectfully requested.

Respectfully submitted,



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